

ABSTRACT

The present invention provides a pump device 50 which is usable to dilute a sample 52 before analysis. A first pump 54 pumps the sample to a mixing region 58 where it mixes with a diluent 66. A second pump 64 pumps the diluted sample to the analysis instrument. The flow of the diluent to the mixer is equal to the difference of the flow of the sample to the mixer and the flow of the diluted sample to the instrument. Pumps 54 and 64 are independently controllable by a controller unit which is arranged so that data from the instrument can be used to determine the dilution factor of the sample. Thus, the controller can control this dilution factor in real time, upon receipt of such data from the instrument, by change either one of (or both) the pump's flow rate.

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